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## ‘A magnified piece of thermodynamics’: the Promethean iconography of the refrigerator in Paul Theroux’s *The Mosquito Coast*

IAN HIGGINSON and CROSBIE SMITH\*

Refrigeration has become so well established over the last 125 years that today a crude ice maker becomes a boon for primitive people in the jungle or desert. Only a total dislocation in energy sources will quickly loosen the connections between people and cooling. A few centuries ago, Hippocrates (460–377? B.C.) observed: ‘most men would rather run the hazards of their lives or health than be deprived of the pleasure of drinking out of ice’... In the U.S.A. [today], 750 million frozen Eskimo Pies are sold annually and seven ice cream plants are said to be operating in Moscow... Like the men of Hippocrates, a lot of people will resist any curtailment in food and freezing operations. They have come to expect these for survival in our present social and industrial orders.<sup>1</sup>

These remarks, asserting the extent to which the people of the United States of America regarded refrigeration not as an optional luxury but as a necessity for survival even at the height of the energy crisis of the late 1970s, formed part of a contribution to a massive 11-volume international compendium, *Alternative Energy Sources*, produced in 1978 in response to Western concerns about rising oil prices and falling reserves. An enthusiastic advocate for geothermal energy, the contributor’s perception provides a vivid contextual starting point for our study of Paul Theroux’s novel *The Mosquito Coast* (1981). In this novel the central narrative focuses upon a New England family’s rejection of post-war American consumer society with its imperative to ‘build automobiles that would fail within five years and refrigerators that would fail in ten’.<sup>2</sup> The novel indeed explores some of those very kinds of alternative energy sources which had been exciting scientists and inventors (often on or beyond the fringes of scientific orthodoxy) since the early 1970s when journals such as *The Ecologist* had begun to prophesy an end to energy-driven economic growth in the western world.

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1 Edward F. Wehlage, ‘Conserving electric power by geothermal refrigeration – cooling and freezing’, in *Alternative Energy Sources. An International Compendium*, (ed. T. Nejat Veziroglu), 11 vols., Washington and London, 1978, vi, 2785–2800, 2786–7.

2 Owen Phillips, *The Last Chance Energy Book*, Baltimore and London, 1979, 25–6.

Over the past decade, reflexive studies of issues in 'literature and science' have moved far beyond a stereotypical 'two cultures' approach in which, at best, 'science' impacts upon 'literature' and, at worst, 'science' and 'literature' have nothing to say to one another. Thanks to the researches of Gillian Beer, Sally Shuttleworth, Ludmilla Jordanova and others we now have fully contextualized historiographies, empirically grounded and theoretically informed, for the treatment of literary texts in relation to scientific themes.<sup>3</sup> Recognizing the ways in which professional history of science since Kuhn has powerfully challenged assumptions that 'science' is a self-evident, monolithic and autonomous entity, Gillian Beer in particular argues against a traditional 'literature and science' model in which disembodied ideas are merely translated from one autonomous discipline to the other. Instead, she offers a historiography of transformation and interchange whereby the move from one cultural field to the other almost always involves significant changes in the meaning and deployment of conceptual language.<sup>4</sup>

The consequences of this historiographical reorientation are far-reaching. From the perspective of literature, as Beer notes, 'Scientific material does not have clear boundaries once it has entered literature'.<sup>5</sup> From the perspective of the sciences, the breakdown of an autonomous historiography throughout professional history of science points to the cultural contingency of knowledge production. Just as scientific concepts are transformed in literary texts, so, for instance, concepts from broader cultural contexts frequently undergo radical transformation into a more specialized language of scientific discourse.<sup>6</sup>

We aim to develop this historiography for the case of thermodynamics with respect to one specific literary production. In the first section we summarize recent historical studies of thermodynamics in its earliest contexts, namely those of nineteenth-century Scottish engineering. We reject an 'essentialist' history of thermodynamics (in which the science has some sort of independent, monolithic and timeless existence) in favour of a cultural history in which the science itself is shaped by the cultures in which it is practised.<sup>7</sup> We stress in particular that within Scottish 'democratic' Presbyterian culture it was relatively easy for the language of 'energy', 'work' and 'waste' to be transformed from everyday culture into the new sciences of energy and thermodynamics.

In the second section we suggest that the Calvinist heritage of New England explains why a transformed science of thermodynamics should have found a ready market within American literary texts such as *The Mosquito Coast*. In particular, Presbyterian Scotland

3 Gillian Beer, 'Science and literature' in *Companion to the History of Modern Science*, (ed. R. C. Olby, G. N. Cantor, J. R. R. Christie and M. J. S. Hodge), London, 1990, 783–98; Ludmilla Jordanova (ed.), *Languages of Nature. Critical Essays on Science and Literature*, London, 1986; Sally Shuttleworth, *George Eliot and Nineteenth-Century Science*, Cambridge, 1984, and *Charlotte Brontë and Victorian Psychology*, Cambridge, 1996.

4 Gillian Beer, 'Translation or transformation? The relations of literature and science', in *Open Fields. Science in Cultural Encounter*, (ed. Gillian Beer), Oxford, 1996, 173–95. This exceptionally rich paper contains a wealth of insights into the interactions between literary and scientific fields and practices.

5 Beer, op. cit. (4), 186.

6 See, for example, Beer, op. cit. (4), 184–5, esp. 184; Jan Golinski, *Making Natural Knowledge. Constructivism and the History of Science*, Cambridge, 1998, 103–32.

7 See Crosbie Smith, *The Science of Energy. A Cultural History of Energy Physics in Victorian Britain*, London and Chicago, 1998, esp. 1–14.

and Puritan New England shared a set of cultural values which elevated the moral worth of work and condemned the moral vice of waste. To someone who identified with such values, the ultimate sin lay in a post-Second World War consumer culture of mass production and conspicuous consumption which had turned America into a 'dope-taking, door-locking, ulcerated danger-zone of rabid scavengers and criminal millionaires and moral sneaks'.<sup>8</sup> The shared vision, furthermore, extended to a representation of the world of visible nature and humanity, post-Fall, as imperfect in its parts and destined for inevitable decay.

In the remaining sections, our reading is informed by the claims of Michel Serres for the 'simultaneity' of science and myth. The myth of origins, for example, involves a simultaneous interweaving of religious myths, literary voyages and scientific quests for knowledge.<sup>9</sup> While scientific papers and institutions have tended to fix boundaries to the sciences, literary texts provide the location for a far less constrained pursuit of this kind of simultaneity. In the case of *The Mosquito Coast*, a magnified science of thermodynamics is embodied in the physical form of a giant and highly unstable ice-making plant, 'Fat Boy', whose name resonates with the nicknames of the earliest atom bombs.<sup>10</sup> Its creator is the Promethean Allie Fox, for whom the whole of creation is the flawed product of an inventor-God who 'moved on before he got it working properly', leaving it to mankind 'to understand how it worked, to tinker with it and finish it'.<sup>11</sup> The Prometheus myth is therefore reinvented with a twentieth-century grounding in the science most concerned with mastering the physical powers of nature. But the myth also carries much other cultural freight, including a strong Calvinist sense of the sin of human pride, of elevating human beings above their imperfect nature, and of seemingly challenging the power of God in such a way as to invite retribution. Fox, indeed, elevates himself to Christ-like status as he attempts to regenerate the world through an economy of ice centred on Fat Boy.

## THE IMPERFECTIONS OF HUMANITY: THE SCOTTISH CONTEXT

First generation, nineteenth-century thermodynamics was shaped by engineers and by natural philosophers seeking to understand, and to improve, the working of heat engines which drove the locomotives, ships and mills of Victorian Britain and the rest of the industrializing world around 1850. The culture which shaped the new science was both

8 Paul Theroux, *The Mosquito Coast*, Penguin edn., London, 1982, 11. First published 1981. All page references are to the Penguin edition.

9 Beer, op. cit. (3), 787; op. cit. (4), 177; Michel Serres, *Hermes: Literature, Science, Philosophy*, (ed. J. Harari and D. Bell), Baltimore, 1982.

10 'Fat Boy' is a conflation of 'Little Boy' (the uranium weapon dropped on Hiroshima) and 'Fat Man' (the plutonium implosion device dropped on Nagasaki). We thank Jeff Hughes for this information. The central significance of thermodynamics in post-war American literature has been explored for the period 1950–1970 in Tony Tanner, *City of Words. A Study of American Fiction in the Mid-twentieth Century*, London, 1970, 141–80. The theme of thermodynamics in relation to *The Mosquito Coast* is ignored by critics. See, for example, Samuel Coale, *Paul Theroux*, Boston, 1987, 114–29; John Rothfork, 'Technology and the Third World: Paul Theroux's *The Mosquito Coast*', *Critique: Studies in Modern Fiction* (1985), 26, 217–27; Steven R. Luebke, 'Self's dark circle: the home-founding journey in Paul Theroux's *The Mosquito Coast* and Stephen Minot's *Ghost Images*', *ibid.* (1989), 30, 227–38.

11 Theroux, op. cit. (8), 242.

practical and Presbyterian in character. Moving among Glasgow engineers and shipbuilders concerned with maximizing useful work, and hence profit, the brothers James and William Thomson and the engineer Macquorn Rankine had their sights set firmly on designing and patenting new and more economical forms of motive power which would suit the demands of shipping companies seeking to open up regular steamship services across oceans and along seaboard, especially on the Pacific coast of South America, where coal was scarce and the risks were high. Like their illustrious engine-designing predecessor and national icon, James Watt, who had carried with him a 'waste-book' in which to note down everyday sources of waste with a view to their reduction and possible elimination, these Glasgow men not only saw 'waste' as a barrier to profitable operation, but also deemed it a principal sin against which the Scottish Presbyterian engineer must wage war. Indeed, a minister, Rev. Robert Stirling of Galston in nearby Ayrshire, had already patented a hot-air engine which promised to deliver motive power much more economically than any steam engine.<sup>12</sup>

In the Thomson-Rankine formulation of thermodynamics, a 'perfect' waterwheel or thermodynamic engine was one in which the useful work produced could be deployed to raise the same quantity of water or heat to its original height or temperature as that involved in the production of the work. For example, the fall of a certain quantity of water drives a waterwheel (A). If there were no losses due to friction or spillage, the useful work could be used to raise the same quantity of water to the original reservoir by driving an identical waterwheel (B) in reverse. In this case (B) would be acting as a pump for lifting water from a lower to a higher level. Similarly, a perfect heat-engine (C) driven by the fall of heat from one temperature to another produces useful work which could be used to restore the original temperature difference by driving a heat-engine (D). In this case, (D) would be a reverse heat-engine or refrigerator. In neither waterwheel nor heat-engine is any net work gained in the reversible processes: if it were, then perpetual motion in the form of power from nothing would ensue, a result deemed impossible by the scientific establishments of Europe and America. The conclusion, then, was that no engine could be more efficient than a perfectly reversible one, yielding 100% efficiency.<sup>13</sup>

Thomson and Rankine had effectively set up an ideal of a perfect thermodynamic engine against which all actual engines could be judged. Every real engine was liable to some incomplete or imperfect restoration if run in reverse. Friction, spillage and conduction produced 'waste', ensuring that the engine fell short of the ideal. Engineers thus had a practical and moral imperative to minimize those 'losses' if they were to maximize wealth and avoid the sin of waste. Working Presbyterian man had a moral duty to harness the fall, by means of an efficient waterwheel, to the production of useful work if he were to avoid the sin of waste. The formulation also evoked the creed of another Glasgow icon, Adam Smith, whose labour theory of value (in which the 'real value' of any commodity derived from the quantity of labour or work needed to produce it) distinguished between

12 Ben Marsden, 'Blowing hot and cold: reports and retorts on the status of the air-engine as success or failure, 1830–1855', *History of Science* (1998), 36, 373–420; Smith, op. cit. (7), 33–4, 47–8, 150–66; M. Norton Wise (with the collaboration of Crosbie Smith), 'Work and waste: political economy and natural philosophy in nineteenth-century Britain', *History of Science* (1989), 27, 263–301, 391–449; (1990), 28, 221–61.

13 Smith, op. cit. (7), 100–25.

‘productive [useful] labour’ (as in manufactured articles) and ‘unproductive [wasteful] labour’ (as in the work of domestic servants).<sup>14</sup>

A fundamental question ran through the construction of these new sciences of thermodynamics and energy: whether or not the principle of energy dissipation, so beloved by the Scottish thermodynamicists, entailed a universe inherently imperfect in its creation. The link between natural and moral perfection was strong in Presbyterian Scotland. Traditional Calvinist preachers had dwelt not only upon the sins of a fallen human race but also upon a universe blighted by sin. In the 1830s, for example, the Scottish evangelical preacher Thomas Chalmers, speaking in a period of great social instability, often seemed preoccupied by the extent to which visible nature, rather than the human race alone, was subject to such derangement. Even the hitherto eternal perfections of the mighty solar system were illusory: all nature contained ‘within itself the rudiments of decay’. Moreover, just as mortal man had not within himself the means of personal salvation, neither could nature regenerate from within itself: ‘unless renewed by the hand of the Almighty, the earth on which we are now treading must disappear in the mighty roll of ages and of centuries’.<sup>15</sup> It was a harsh and uncompromising message of a universe infected with sin and death.

By the 1850s, however, the theological message had been softened by a new generation of Scottish Presbyterian scholars associated with the universities and the intelligentsia. For Thomson, Rankine, Maxwell and their theological colleagues, for example, the emphasis was on Christ as perfect humanity. Just as human beings fell short of Christ’s perfection in the spiritual realm, so did they also fall short of nature’s perfection in the material realm. Thus the seeming waste was not actually imperfection in nature, but waste to human beings who had failed to turn the energies of nature to useful effect. This Scottish group drew on a common discourse of ‘work’, ‘waste’ and ‘energy’ to construct an accessible, yet powerful new science of energy which transformed radically the older Calvinist notions of a universe in decay.<sup>16</sup>

## THE IMPERFECTIONS OF SOCIETY: THE NEW ENGLAND CONTEXT

North American historians have in recent years explored Puritan foundations for New England values of ‘time’ and ‘work’, especially in the seventeenth and eighteenth centuries. Paul Hensley, for example, has shown for the early modern (pre-industrial) period the extent to which ‘time’ was ‘sacred, episodic, and providential’, being directed by God ‘to save men from both physical and spiritual calamity’. Moreover, ‘hard work and a wise use of time were nothing less than expressions of Christian duty’. Thus New England authorities ‘took steps to regulate public time by encouraging steady Sabbath observance, enforcing punctuality, deterring idleness, and establishing good work habits’. Indeed Calvin himself had pronounced idleness a form of theft and hence a violation of the

14 Smith, op. cit. (7), 139–49. See also Crosbie Smith and M. Norton Wise, *Energy and Empire. A Biographical Study of Lord Kelvin*, Cambridge, 1989, 497–551.

15 Thomas Chalmers, *The Works of Thomas Chalmers*, 11 vols., Glasgow, 1836–42, vii, 266–7.

16 Smith, op. cit. (7), 309–11.



Eighth Commandment. Idleness 'presented an affront to the church and a challenge to the community', a potentially infectious sin that in some cases was dealt with by excommunication.<sup>17</sup>

A complementary study is Gerhard Ditz's reinterpretation, for American (New England) capitalism, of Weber's and Tawney's classic theses connecting capitalism with Protestantism. For Ditz, 'Calvin designated rational, wealth-oriented work-effort as the principal sacrament for those who felt called and wanted to be chosen ... For the first time in history the two capital-producing prescriptions, maximization of production and minimization of consumption became components of the same ethical matrix ... Calvinism ... put saving ethically above spending, investing above saving'.<sup>18</sup> With respect to this reading of the New Testament parable of the talents, Boyd Hilton has noted the contrast with early nineteenth-century England where the fashionable theology was Anglican (Episcopalian) rather than Calvinist, being instead supportive not of a social élite of manufacturing entrepreneurs but of the 'gentrified, professional, cosmopolitan classes'.<sup>19</sup> Scottish culture was indeed much closer to that of New England, with a powerful emphasis on the virtues of production (work) over consumption (waste).

In the seventeenth and eighteenth centuries the puritanism of New England's ruling élites in religion, politics and education had been embodied in Congregationalism. In the judgement of the American historian Henry Adams, 'The Congregational clergy, battling with the innate vices of human nature, thought themselves obliged to press on their hearers the consequences of God's infinite wrath rather than those of his infinite love'.<sup>20</sup> Yet by the late eighteenth and early nineteenth centuries, the Massachusetts (especially Harvard) intelligentsia preached a gentler, non-dogmatic Unitarianism which tended to propagate a vision of 'the godlike in the human' (implying divine goodness rather than divine power) and which held out a promise for the perfection of human society. It was a creed that found special favour with New England's nineteenth-century literary élite, drawing its 'transcendentalist' inspiration from the lapsed Unitarian minister Ralph Waldo Emerson. Yet the emphasis on human perfectibility seemed ill at ease with the increasingly conspicuous qualities of greed and fear which writers identified in late nineteenth- and twentieth-century America.<sup>21</sup>

In *The Mosquito Coast* Theroux embodies in his central character many of the features of a vanishing New England puritanism in opposition to the waste, greed and hedonism of modern consumerism. Above all, the fictional Allie Fox is committed to a gospel of work

17 Paul B. Hensley, 'Time, work, and social context in New England', *The New England Quarterly* (1992), 65, 531–59, esp. 533, 535. See also Stephen Innes (ed.), *Work and Labor in Early America*, Chapel Hill, 1988, for detailed case studies on New England.

18 Gerhard W. Ditz, 'The Protestant ethic and the market economy', *Kyklos* (1980), 33, 623–57. Quoted in Boyd Hilton, *The Age of Atonement. The Influence of Evangelicalism on Social and Economic Thought 1785–1865*, Oxford, 1988, 375. The relevance of Calvinism to the text is recognized by Rothfork, op. cit. (10), 222.

19 Hilton, op. cit. (18), 375–6.

20 Henry Adams, *History of the United States of America During the Second Administration of James Madison*, 3 vols., London and New York, 1892, iii, 175.

21 These issues form the starting point for our larger study of Henry Adams and his cultural contexts. Contemporary perceptions of the religious changes can be found in J. L. Diman, 'Religion in America, 1776–1876', *North American Review* (1876), 122, 1–47. Emerson's perspective is well exemplified in Ralph Waldo Emerson, 'Perpetual forces', *ibid.* (1877), 125, 271–82.

with as much dogmatic zeal as any of his Puritan ancestors. Again and again throughout the narrative he reminds his listeners that 'we've got work to do'. Correspondingly, he believes that 'no one should be idle'. In these respects he seemingly shares the values of the Scots engineers and political economists for whom 'useful work' and 'productive labour' represented not only the path to wealth but also a high moral imperative and for whom 'waste' and 'unproductive labour' represented the sin of aristocratic idleness. But Allie is never really interested in the generation of wealth. As he persistently attempts to impress his latest invention upon his employer, Tiny Polski urges him to 'stop trying to save me money, Mr Fox'. It is a vain protest. Allie responds, 'It's not the money, it's the wasteful attitude I object to. Doctor, it's sending this country down the tubes'. The wasteful attitude indeed pervades the whole market economy. En route to Honduras, Allie lectures the harrassed captain of the banana boat *Unicorn* on the immorality of modern American business practice ('if you have sold a customer exactly what he wanted, you haven't sold him anything') and proclaims that such practices are both ruinous and evil: 'We eat when we're not hungry, drink when we're not thirsty, buy what we don't need, and throw away everything that's useful'.<sup>22</sup>

This difference serves to make clear that the immediate target for Allie's critique is 1970s American culture. In *The Last Chance Energy Book* (1979), published by The Johns Hopkins University Press, for example, Owen Phillips contended:

When appliances broke down, it was often cheaper to junk them and buy new ones than it was to have someone search through for the problem and make a sometimes trivial repair. Junking them seemed cheaper and better for the economy: it kept the industrial plants in full production and the steel mills rolling. As long as cheap and plentiful energy was available to provide a base for it all, we could build automobiles that would fail within five years and refrigerators that would fail in ten because we needed to sell all the new ones that industry could produce. Our material standard of living rose in bounds.<sup>23</sup>

Phillips noted that as a consequence American cities began to run short of space for the trash and 'towns became ringed with piles of junked automobiles'. In preference to recycling the metal, 'it was less expensive to produce steel afresh and leave the junk to rust. The profligate age had come'. It was an age which, he argued, had nevertheless attempted to justify such an economy of consumption and waste on the grounds that it freed us of the drudgery of manual labour and offered the prospect for more creative activity. In reality, he asserted, the result was passivity: 'television became a great merchandising industry as it seized upon a massive and supine audience'.<sup>24</sup>

More broadly, the end of the 1970s coincided with a peak in the production of books, articles, conferences and symposia concerning the so-called 'energy crisis' of that decade.

22 Theroux, op. cit. (8), 26, 142, 250, 147, 44, 83–4. As explored in Coale, op. cit. (10), 5–8, Paul Theroux was born and educated in Massachusetts, of French-Canadian stock on his father's side and Italian stock on his mother's side. Within this strong Roman Catholic tradition, there were wide cultural variations. His older brother Alexander, for example, had for a time monastic leanings while Paul himself reacted against all such Catholic doctrine. In his writings he also refers to the French-Canadian migrants to the United States as 'hard-working but not particularly adventurous' while in *Half Moon Street* he identifies the fictional family of De Marr with a version of Catholicism 'that took away their ambition and made them morally lazy' (cited in Coale, op. cit. (10), 8). The contrast with the character of Allie Fox could scarcely be more striking.

23 Phillips, op. cit. (2), 25–6.

24 Phillips, op. cit. (2), 25–6.



Following the Arab–Israeli War (1967) and the closure of the Suez Canal, shipbuilders began constructing a generation of tankers known as Very Large Crude Carriers (VLCCs), each with a capacity of some quarter million tons. The utilization of these enormous vessels, designed to ship oil to the Western world at low transportation costs compared to previous generations of supertanker in the range 30–100,000 tons, quickly became a barometer of energy supply and demand. Within six years the Yom Kippur War between Israel and her Arab neighbours sent the first massive shudder through the world energy markets as the oil producers (OPEC) placed an embargo on oil supplies to the West and drove prices up to unprecedented levels. Many VLCCs moved straight from launch to lay-up. The great post-war era of cheap energy seemed over. For the rest of the decade, Western governments appeared to be at the mercy of OPEC price shocks: ‘During virtually all of 1977 and 1978 we, and the world, were exposed to the unedifying spectacle of a [United States] Congress, paralyzed and unable to devise even a minimal energy policy... The near collapse of the dollar on money markets abroad during that time reflected not only the succession of massive national deficits but also indicated the lack of confidence there that Congress would ever pull itself together to generate such a policy’. Or in Allie’s terms, ‘Fuel shortages, unemployment, moral sneaks in Washington ... double-figure inflation and a two-dollar loaf of bread. That’s what I call trouble’.<sup>25</sup>

Since 1972, the self-designated ‘Club of Rome’ had brought together academics who believed that science and technology, wisely directed, could solve part of those world problems which they labelled the *problematique*, centred on ‘limits to growth’. The results of an ensuing study appeared as Dennis Gabor’s *Beyond the Age of Waste* (1978), in which

Waste... pervades the whole issue... the waste concept epitomizes the whole *problematique* of science and technology for human betterment, with the tangled interconnection between food, agriculture, materials, energy and human motivation... In any foreseeable well-managed society, research and development will have to be concerned with the optimal use of the biophysical resources of the planet, both renewable and, above all, human resources. Not only does wasteful operation of the economy present a threat to future generations, but the actual waste of human resources through unemployment, underemployment, disease, malnutrition and uncreative repetitive work... is already tragic in the present context.<sup>26</sup>

Sharing with these critics a deep sense of the wasteful failures of a profligate post-war age of consumerism, Allie’s professed motives in *The Mosquito Coast* are also primarily moral. When his employer Polski repeatedly professes that ‘I’ve got work to do’, he is motivated not by a desire for honest toil but, in Allie’s eyes, by greed alone (Allie’s son Charlie notes that Polski is always dressed for work but never dirty). For Allie, Polski’s sources of profit are both economically wasteful and (especially in his use of ‘slave’ labour from Central America) immoral. Allie typically launches into a satirical lecture on the nature of progress: ‘That’s why we went to war in South Korea, to fight for labour

25 Phillips, op. cit. (2), 129; Theroux, op. cit. (8), 213. Our survey in Cambridge University Library reveals a distribution of ‘energy’ books beginning gradually in the early 1970s and accelerating to a peak in 1978–80. On OPEC and the VLCCs see, for example, Stephen Howarth, *A Century in Oil. The ‘Shell’ Transport and Trading Company 1897–1997*, London, 1997, 307–9; *Sea Shell. The Story of Shell’s British Tanker Fleets 1892–1992*, London, Hamburg and Boston, 1992, 165–79.

26 Aurelio Peccei, ‘Preface’, in *Beyond the Age of Waste. A Report to the Club of Rome* (ed. D. Gabor and U. Colombo with A. King and R. Galli), Oxford, 1978, p. x.

intensive industries, which means skinny kids punching out waterbags and making tin cups for us... That's progress'. Polski, indeed, embodies for Allie the modern capitalistic abuse of power whereby capitalists grow richer not by dint of useful work but by their control of available resources.<sup>27</sup>

In contrast, Allie reveals himself early on to be a believer in a gospel of useful work understood neither as a means to luxury, idleness or profit but as a Baconian route to the 'relief of man's estate': 'Profit? I didn't plumb that chair and make that foot-massager so that I could retire on fifty grand a year. I did it because of lumbago and sore feet, and if I'm able to ease someone else's pain, fine. That's the way I'm made'.<sup>28</sup>

Freed from the constraints of the modern American economic system, Allie attempts to put into practice his gospel of useful work. He opts for a Honduran jungle setting named Jeronimo (its name evocative of shameful events in America's past) which would become the site for an experiment involving nothing less than a rerunning of American history without the economy of consumerism. There are two hallmarks of the Jeronimo experiment which should be noted as characteristic of an earlier New England culture in contrast to that of the modern America that Allie leaves behind. First, Ditz has not only highlighted the Calvinist priority of investing over saving and spending but has also claimed that 'risk-taking came under the imperative of stewardship... Financial risk-taking for the would-be-saints had been programmed into their earthly life'. Thus he argued that the twentieth-century decline in American capitalism was attributable to the retreat from Calvinism.<sup>29</sup> In removing himself and his entire family from the comparative comfort of Hatfield, Massachusetts, to the Honduran jungle, Allie has indeed chosen a similar high-risk strategy. Second, Daniel Vickers has examined the early New England ethic of 'competency', whereby farming families valued propertied independence and worked hard to preserve it. Townspeople and Indians would often help on a specific farm with particular tasks in return for reciprocal labour or barter payment.<sup>30</sup> This kind of independence (as distinct from self-sufficiency) is another feature of Allie's Jeronimo.

The construction of Jeronimo takes place on the site of a failed attempt at habitation by a German, Mr Weerwilly, whose abandoned implements Allie quickly recovers and whose failure he attributes to carelessness, 'like the people in America who junked perfectly good lumber and wire'.<sup>31</sup> But now Allie's primary task involves a struggle against a recalcitrant and even malevolent nature. Having identified the imperfections of American humanity, he prepares to engage with the imperfections of the whole of creation.

## THE IMPERFECTIONS OF NATURE

In the first section we saw how the original Scottish formulation of thermodynamics was constructed within a Calvinist theological context, but that that context was itself changing in the mid-nineteenth century. As a consequence, the Scottish natural philosophers and

27 Theroux, op. cit. (8), 32, 33, 28–9, 52, 57.

28 Theroux, op. cit. (8), 45.

29 Ditz, op. cit. (18), 623–57. Quoted in Hilton, op. cit. (18), 375.

30 Daniel Vickers, 'Competency and competition: economic culture in early America', *William and Mary Quarterly*, 3rd ser. (1990), 47, 3–7; Hensley, op. cit. (17), 542–3.

31 Theroux, op. cit. (8), 148.

engineers increasingly regarded 'waste' as a feature not of a perfect nature, God's creation, but of the imperfections of a humanity who could nonetheless aspire to improvement if not perfection. Within the puritan-inspired literature of New England, Nathaniel Hawthorne's short story 'The birthmark' (1843) offers a revealing parallel. Aylmer, man of science, perceives on the cheek of his new wife Georgiana 'the visible mark of earthly imperfection'. This 'symbol of imperfection' becomes for him 'the symbol of his wife's liability to sin, sorrow, decay, and death'. Such marks, he reasons, Nature 'stamps ineffaceably on all her productions, either to imply that they are temporary and finite, or that their perfection must be wrought by toil and pain'. Aylmer takes upon himself the scientific quest to erase the birthmark and thus to perfect, with tragic consequences, what Nature left imperfect.<sup>32</sup>

In *The Mosquito Coast* Allie Fox declares right from the start that 'it's an imperfect world'. Well before arrival in Honduras he has been indicting both the capitalist consumer culture of the United States and the natural order for their respective imperfections. Indeed Polski's workers have merely exchanged the imperfections of a hostile nature for the imperfections of a wasteful consumer society, both teeming with scavengers and parasites:

You can't drink the water where those savages originate. It's got creatures in it. Worms. Weeds. They haven't got the sense to boil and purify it. Never heard of filtration. The germs get into their bodies, and they turn green, like the water, and die. The rest of them figure it's no good there – spiders as big as puppies, mosquitoes, snakes, floods, swamps, alligators. No idea at all about geothermal energy. Why change it when you can come here and go to pieces? Give me the wretched refuse of your teeming shore. Have a Coke, watch television, go on welfare, get free money. Turn to crime. Crime pays in this country. They'll all end up mugging and purse-snatching.<sup>33</sup>

Allie's diagnosis never varies. 'We know it's an imperfect world', he tells Captain Smalls of the banana boat *Unicorn*. 'The innate stupidity of inanimate objects – isn't that how it goes?'. Much later in the narrative, post-Jeronimo, Allie Fox's son Charlie offers again Allie's own distinctive perspective on nature in the aftermath of the rains:

Father said you had to admire this foolish waste of energy – nature running mad and drenching everything. It was a huge demented squandering of water... The storm had terrified everyone except Father... You could build a machine that operated on falling rain – the collected rain that would spin a flywheel, the same principle as the water-wheel, but more efficient – no drag. Only the rain was undependable, because the world was imperfect. Nature tried to burn you, then starve you, then drown you... That fear made people religious nuts instead of innovators.<sup>34</sup>

Allie's vision of nature, then, is scarcely one of natural order. As such, it contrasts starkly with Enlightenment perspectives on standards of natural law by which one could judge the imperfections of human society and its rulers. Instead, his vision of nature and society at first sight seems indistinguishable from that of the old Calvinists who, as we saw in the Scottish context, preached not only upon the sins of a fallen human race but also upon a

32 Nathaniel Hawthorne, 'The birthmark', in *Great Short Works of Nathaniel Hawthorne* (ed. F. C. Crews), New York, 1967, 300–17.

33 Theroux, op. cit. (8), 16, 17.

34 Theroux, op. cit. (8), 102, 316–17.

universe condemned to inevitable decay. The similarity went further, for nothing within the natural world offered any hope of redemption, any possibility of a restoration of nature's wasteful energies.

Many years earlier Henry Adams had asserted that man 'has but one dominant function:- that of accelerating the operation of the second law of thermodynamics'.<sup>35</sup> With respect to modern American culture, the assertion might have been made by Allie himself. But with respect to his own fervent creed, Allie would have profoundly disagreed. For Allie, not only could the imperfections of modern man and of nature be put right, but the operation of the second law of thermodynamics might be retarded if not actually arrested by the proper direction of man's ingenuity and skill.

Allie's strategy throughout is based upon 'work, and more work, and a routine that took up every daylight hour'. But it is not work for work's sake. Salvation would lie not in the inherent goodness of the work itself, but in the utilization of the skills endowed in man. For Allie, then, the key to salvation is to mobilize his own practical skills, and to direct his labour force, in a highly organized division of time and labour for the production of useful work:

On Mondays he gave us our targets for the week – finish the house, or get so many bushels of stones, or clear a certain amount of land, or cut beanpoles, or dig trenches for culverts. The Maywits were mainly the gardeners, the Zambus mainly the land-clearers and builders, and the children – the Maywits and us – collectors and cleaners.

It was work with a high moral value, directed to the production of space for more useful work in the wilderness.<sup>36</sup>

Allie's leading quality, demonstrated on many occasions throughout the novel, is what Polski termed 'real Yankee ingenuity'. Or, as Charlie expressed the point with more than a little admiration, 'Father, an inventor, was a perfect genius with anything mechanical'.<sup>37</sup> Allie is the embodiment, almost the caricature of the ingenious, practical, inventive and independent American. One Irish Presbyterian visitor's diary captured the image in the spring of 1939 as he sailed for home aboard the ill-fated Scottish liner *Athenia*, first victim of the U-boat war just three months later:

One is bound to admire the real ingenuity of the Americans – their cars, homes & whole lifes [*sic*] are full of 'gadgets,' all evidence of an inventiveness & imaginativeness to which, I fancy, the whole world is debtor. We insular [British] folk are apt to be critical of the 'big talk' of American people. Perhaps some of them are indiscreet & indulge overmuch in 'odious comparisons' – but talking in superlative terms is inevitable – America is a land of big things – its wealth, its transport, buildings, distances, standards of living – all are truly big. Allowance must be made for this. In describing their own land an American is bound to 'talk big' if he talks truly.<sup>38</sup>

35 Henry Adams, 'Letter to American teachers of history' (1909), quoted in Tanner, op. cit. (10), 149. See also Greg Myers, 'Nineteenth-century popularizations of thermodynamics and the rhetoric of social prophecy', *Victorian Studies* (1985–6), 29, 35–66 and S. G. Brush, *The Temperature of History. Phases of Science and Culture in the Nineteenth Century*, New York, 1978.

36 Theroux, op. cit. (8), 152, 17.

37 Theroux, op. cit. (8), 14.

38 Rev. William G. Wimperis, 'Diary of a North American visit, April–June, 1939', in possession of his grandson, Crosbie Smith, University of Kent at Canterbury. For a fuller historical analysis of these issues see Thomas P. Hughes, *American Genesis. A History of the American Genius for Invention*, New York, 1989.

On the eve of American involvement in the Second World War an ill-informed Air Marshal Goering advised his Führer that 'the Americans cannot build airplanes. They are very good at refrigerators and razor blades'.<sup>39</sup> Likewise, the Axis powers reckoned without American ingenuity when it came to Henry Kaiser's mass-production methods of constructing the 'Liberty Ships', the vast armada of standard freighters assembled at unprecedented speed by labour and in yards with little or no shipbuilding tradition.<sup>40</sup> Ironically, of course, it was the same ingenuity of adapting means to ends that provided the foundation for the post-war consumer boom against which Allie Fox would react.

Seen by Charlie as a perfect mechanical genius, Allie wants to be known as a perfectionist to whom things were revealed. As Charlie explains,

Father often talked of things being 'revealed'. That was true invention, he said, revealing something's use and magnifying it, discovering its imperfection, improving it and putting it to work for you... He said, 'It's savage and superstitious to accept the world as it is. Fiddle around and find a use for it'. God had left the world incomplete, he said. It was man's job to understand how it worked, to tinker with it and finish it. I think that was why he hated missionaries so much – because they taught people to put up with their earthly burdens... He was a perfectionist.

It is this very perfectionism that, for Allie, explains, justifies and motivates his construction of Fat Boy, the monstrous ice-making machine: 'And why build it? Because it's an imperfect world! And that's why I do what I do'.<sup>41</sup> Allie's understanding of the laws of thermodynamics, of work and waste, would combine with his inventive skill to offer the saving gift of ice to an imperfect and incomplete world. Without Allie's gospel of ice, society and nature would run to everlasting waste; with ice, society and nature could aspire to perfection and become again a Garden of Eden.

#### 'ICE IS CIVILIZATION'

'The Truth about Today's Refrigerators!' ran a General Electric full-page technicolour advertisement in the *National Geographic Magazine* for April 1941. The illustration placed a large electric refrigerator centre-stage, displaying a packed array of foodstuffs and surrounded by a smiling, prosperous American family. 'Preferred by more people than any other refrigerator!' proclaimed the text. All but the very poor, moreover, could afford this necessity of modern civilization: it cost 'so little that almost every family can afford the best in modern refrigeration'. Above all, 'today's good electrical refrigerators are as fine an example of mechanical perfection as human ingenuity, skill and science have produced. They're more than twice as efficient as refrigerators of ten years ago, yet cost about half as much'.<sup>42</sup>

What General Electric did not mention, however, was that the rhetoric of improvement

39 Alistair Cooke, *America*, London, 1973, 342.

40 Cooke, op. cit. (39), 344–5; L. A. Sawyer and W. H. Mitchell, *The Liberty Ships. The History of the "Emergency" Type Cargo Ships Constructed in the United States During World War II*, Newton Abbot, 1970.

41 Theroux, op. cit. (8), 242, 166–7.

42 *National Geographic Magazine* (1941), 79, vii.

was precisely geared to persuading consumers to junk their old refrigerator and invest in the new. Nor did they even hint that these kinds of claims were the culmination of many years of commercial warfare against the no-less-efficient gas refrigerators whose manufacturers had been driven to extinction by the power of the electrical giants. Incensed by what he saw, Allie repudiates the refrigerator, long a symbol of American consumerism, and replaces it with Fat Boy, a construct that was at once a 'magnified piece of thermodynamics' and the centre-piece of a superior civilization.<sup>43</sup>

While still in the employ of Polski, Allie envisions 'a vast cooling plant and cold store... on seven or eight levels, the size of two barns'. It would look 'like a cathedral, with a chimney for a steeple'. Unlike cathedral spires, however, it would not point towards an external Creator-God, and unlike conventional chimneys it would not act as a crude conduit for the discharge of waste products of combustion. Soon after, indeed, Charlie describes the truck journey to Baltimore through the petrochemical wilderness of New Jersey with reference to 'the tallest smokestacks and dingiest air I had ever seen... past a landscape that was like a greasy sink... I had never seen flames like these spurting from chimneys'.<sup>44</sup>

Allie's chimney would in contrast declare the high moral purpose of his enterprise. It would exemplify his thermodynamic crusade against the wastefulness and imperfection of man and nature with 'baffles to conserve heat and redirect it back to the main supply, the fire itself – recycling the heat, so to speak'. Accepting that 'there's waste heat', Allie's system would have 'ducts built into the chimney' allowing for this heat to be 'blown across a grid'. The result would be a battery in two senses: a means of storing or using energy which would be otherwise lost, and 'your egg-hatchery, your heated runs for young chicks and chickens which are going to supply you with fuel in time to come'. The goal would be a civilization built upon minimization of human and natural imperfection:

'Nothing wasted. You've got your refrigeration. You've got your ice. You've got your heat. Sell the eggs you don't need and have the rest for breakfast. Cool down your vegetables. Use your chickenshit for methane. It's a perpetual motion machine. Run a duct to your house and you're airconditioned – cool in summer, warm in winter. Cheap, simple to operate, no waste, foolproof and profitable'.<sup>45</sup>

For Allie, Fat Boy represented his aspiration towards, if not yet the full realization of, perfection through scientific invention. When Allie explicitly likened himself to Victor Frankenstein and the creation of a monster, the likeness went deeper than merely the popular image of the mad scientist unleashing powers which he could not control. For Frankenstein, 'the modern Prometheus', the material world was imperfect, but the natural magician's quest for material perfection had inspired him to seek the elixir of life and

43 Theroux, op. cit. (8), 182; Ruth Schwartz Cowan, 'How the refrigerator got its hum', in *The Social Shaping of Technology*, (ed. D. Mackenzie and J. Wajcman), Buckingham and Bristol, 202–18. For wider cultural and social contexts of electrical consumerism see David E. Nye, *Electrifying America. Social Meanings of a New Technology*, Cambridge, MA, and London, 1990, esp. 238–86; *Consuming Power. A Social History of American Energies*, Cambridge, MA, and London, 1998, 157–86.

44 Theroux, op. cit. (8), 46, 70.

45 Theroux, op. cit. (8), 46–7.



deploy it in the making of a new creature.<sup>46</sup> As Allie's 'creature', Fat Boy would represent human beings' power to achieve perfection in creation.

As another 'modern Prometheus', Allie's quest for power was likely to invite retribution. New England literary classics such as Hawthorne's 'Ethan Brand' (1851) and Herman Melville's *Moby Dick* (1851) had much earlier embodied the theme of a quest for knowledge and power in tragic characters flawed by the sin of pride. Identified as carrying 'a pride that distinguishes all enthusiasts of his stamp', Ethan Brand, for example, confesses to 'the sin of an intellect that triumphed over the sense of brotherhood with man and reverence for God, and [which] sacrificed everything to its own mighty claims!'. As with Ahab in *Moby Dick*, Brand's journey will lead him to face retribution with defiance and, ultimately, self-destruction. Theroux has reconstructed the Prometheus myth for his own time in such a way that Allie's proud boast to have 'made ice in a fire-box' serves as the symbolic core of a modern myth bringing together many of the hopes and fears of the late twentieth-century Western human condition.<sup>47</sup>

The embodiment of perfection, for Allie, is ice, and ice, for him, is civilization. But ice possesses multiple meanings. One of the local children, Leon Maywit, asks Allie, 'What's ice good for?'. The reply is little short of Allie's confession of faith: 'Mainly it's a preservative – it keeps food fresh...It kills germs, it suppresses pain...it's an anaesthetic...it's the beginning of perfection in an imperfect world. It makes sense of work. It's free. It's even pretty. It's civilization. It used to be carried from northern latitudes on ships in just the same way they carried gold and spices'. A little later, he comments on the local uses of his ice: 'Each person will do something different – one man will preserve meat, another will make it into a pain-killer, someone will get the idea of refrigerating his fish instead of smoking it, and how many will it bring out of sunstroke?'.<sup>48</sup> Above all, though, the making of ice, with its potential to slow and even arrest natural processes of decay, seems to offer Allie a principal means of challenging Henry Adams's assertion that man's only dominant function was to accelerate the degradation of energy expressed by the Second Law of Thermodynamics.

Further insight into the significance of ice here may be found in Theroux's slightly earlier short story, 'The Imperial Icehouse':

Of all the grand buildings on my island, the grandest by far was The Imperial Icehouse – white pillars and a shapely roof topped by ornate lettering on a gilded sign. Unlike the warehouses and the shops on the same street, it had no smell. It was whiter than the church, and though you would not mistake it for a church, the fresh paint and elongated windows – and the gold piping on the scrollwork of the sign – gave it at once a look of holiness and purpose... The icehouse did more than cater to the comforts of the islanders. It provided ice for the fisherman's catch and the

46 Theroux, op. cit. (8), 163. For a wider, though now somewhat dated, study of 'Promethean' themes in American literature see Leo Marx, *The Machine in the Garden. Technology and the Pastoral Ideal in America*, Oxford, 1964, 145–226, esp. 192. For a popular perspective on the Frankenstein myth, see Roslynn D. Haynes, *From Faust to Strangelove. Representations of the Scientist in Western Literature*, Baltimore and London, 1994, 92–103, 270. On the theme of perfection in relation to contexts for Mary Shelley's *Frankenstein* see, for example, Crosbie Smith, 'Frankenstein and natural magic', in *Frankenstein, Creation and Monstrosity* (ed. Stephen Bann), London, 1994, 39–59.

47 Nathaniel Hawthorne, 'Ethan Brand', in Crews, op. cit. (32), 351–86, 357; Theroux, op. cit. (8), 33, 34.

48 Theroux, op. cit. (8), 202, 241–2.

farmer's delicate produce... The Imperial Icehouse was our chief claim to civilization. Ice in that climate! It was shipped to the island whole, and preserved. It was our achievement and our boast.<sup>49</sup>

This older economy of ice catered largely to the tastes and fashions of a colonial élite by shipping ice from the northern imperial lands. In contrast, Allie's ice-maker is to be no Imperial Icehouse. His new economy of ice would bring 'civilization' to the indigenous peoples of Central America. Fat Boy, indeed, has none of the gilded pretentiousness of the Imperial Icehouse. The puritan culture of its maker shapes the strictly practical nature of the edifice. With a similar distaste for graven images and false gods, Allie frowns upon a tendency among the people of upriver Seville to make an idol of Fat Boy: 'I didn't come here to give people false idols of worship', he complains after being invited to lead the villages in hymns in front of their ice-maker, a pale and useless imitation of the true machine.<sup>50</sup>

Allie has constructed his economy of ice in opposition to the democratic consumer culture that he had wanted to leave behind but which continued to haunt him in the form of evangelical missionaries and preachers attempting to sell religion with their 'Blue-Jeans Bibles' and videos. In his *America* (1973), Alistair Cooke traced the origins of American mass-market salesmanship to the upper-crust Bostonian Frederic Tudor whose ingenuity was deployed in the shipping of ice from New England to the tropics. To create a market among the fashionable and wealthy, Tudor 'sailed around half the globe convincing dazed clients that iced drinks were the elixir of health, that a hospital without ice was ready for the plague, that a meal without ice cream was a cannibal's snack'. But to create a mass market, he 'undercut his competitors, made simpler ice houses, offered bargains in bulk and, in the end, sold his ice for a penny a pound'.<sup>51</sup> Ice had been rendered not a luxury for some but a necessity for all.

While sharing in a vision of ice for all, Allie has long rejected such mass consumerism as one of the roots of evil in the modern world. Ice is for him not about profit but about generating a civilization which minimizes waste. If the making of ice in the tropics seems like the most wasteful of human endeavours, it is not so to Allie. For him, not only does its physical melting leave behind no waste products, but above all ice also has quasi-spiritual qualities of purity and of comforting and healing power. A perfected ice-machine could, furthermore, both produce ice without waste of energy and serve to regenerate mankind by making possible a unified social order free from the fragmentation brought about by consumerism.

Much earlier in the century Henry Adams, who employed thermodynamics as the key to understanding the laws of human history and civilization, had written in his *Education* of the 'fetish-power' of the Virgin Mary. Such a power had produced the great cathedral of Chartres which no modern power could emulate: 'Symbol or energy, the Virgin had acted as the greatest force the western world ever felt'. In Adams's reinvented account of

49 Paul Theroux, 'The Imperial Icehouse', in *World's End and Other Stories* (ed. Paul Theroux), London, 1982, 31–2. First published 1980. The 'imperial' theme becomes stronger as the narrative culminates in the killing of a (British) 'white planter' at the hands of his 'negro' workers.

50 Theroux, op. cit. (8), 201.

51 Theroux, op. cit. (8), 92, 356; Cooke, op. cit. (39), 372–3.

the thirteenth century, the Virgin represented and generated unity, in contrast to twentieth-century multiplicity.<sup>52</sup> Within Fox's closed world of Jeronimo, ice too acts with Virgin-like purity as the symbol and generator of unity and order in contrast to the fragmentation inherent in a profligate consumer society.

The realization of Allie's vision of a 'superior civilization' would depend upon the aspiration to minimum waste and maximum useful work, that is, to the approach to thermodynamic perfection. At times, Allie regards that perfection as attainable through the deployment of geothermal energy: 'someday there'll be a conduit here, self-sealing and perpetual, and this whole refrigeration plant will be operated by geothermal energy'. The result would be a seemingly unlimited supply of ice. Allie's ultimate vision here, indeed, appears to offer a powerful counter-echo to William Thomson's celebrated proof, much quoted in textbooks on thermodynamics, that if it were not the case that motive power could only be obtained from a difference of temperatures then 'a self-acting machine might be set to work and produce mechanical effect [work] by cooling the sea or earth, with no limit but the total loss of heat from the earth and sea, or, in reality, from the whole material world'.<sup>53</sup> In other words, without the constraint of the Second Law of Thermodynamics, human engineers might construct a refrigerator which could in principle freeze the entire material world.

#### SCARECROWS VERSUS SCAVENGERS: TOWARDS THE DEGRADATION OF ENERGY

Ice had been the practical and symbolic key to the superior civilization in which pain gave way to comfort and decay yielded to regeneration. The result had been a high level of material and social order, corresponding to a very high level of available energy located within Fat Boy. Jeronimo 'was all as he had predicted, but more orderly and happier than we had imagined' and with the completion of Fat Boy became 'a masterpiece of order'. For a time it had even seemed possible to exclude from this 'notch in the jungle' all scavengers, whether vultures, mosquitoes or missionaries. But Allie himself invites in three human 'mosquitoes' and too late attempts to 'freeze' them out of his system. As a result, Jeronimo is laid waste.<sup>54</sup>

After the destruction of Jeronimo, Allie confesses that 'I was asking for it to be destroyed. That's a consequence of perfection in this world – the opposing wrath of imperfection. Those scavengers wanted to feed on us!'.<sup>55</sup> This retrospective judgement highlights a fundamental feature of Allie's unorthodox scientific creed, namely his belief that there are active and malevolent agents of imperfection at work in the world. This belief, manifested in his seemingly paranoid outbursts against gulls and other scavengers, becomes much stronger in the closing phases of the narrative. But even in the opening scenes Charlie foreshadows Allie's hostile relationship to scavengers with the powerful and suggestive image of 'the scarecrow'.

52 Henry Adams, *The Education of Henry Adams. An Autobiography*, Boston and New York, 1918, 388, 435.

53 Theroux, op. cit. (8), 208; Smith and Wise, op. cit. (14), 329.

54 Theroux, op. cit. (8), 298, 169, 203, 170, 255, 258.

55 Theroux, op. cit. (8), 271.

Discovering his father missing from their New England home, Charlie embarks on a night-time search during which he witnesses a torchlight procession led by a man 'carrying a huge black cross'. Behind this man is another 'carrying a human body, a limp thing, with the head slung down and feet dangling and the arms swishing back and forth'. Very soon Charlie concludes that 'that dead twisted person is my old man'. Finding next morning his father still very much alive, Charlie sees again 'a cross, a dead man hanging on it, black rags and a black head, a skull face and broken hands and twisted feet' and is truly scared. 'Don't tell me you've never seen a scarecrow', is his father's amused response. Close to the end of the story Allie, fever-stricken, immobilized and dying aboard the boat, utters 'the terrible sentence, "Christ is a scarecrow"'.<sup>56</sup>

This scarecrow imagery invites multiple readings. Allie's dying pronouncement, for example, could be taken simply as a reiteration of his contempt in general for all things Christian and in particular for his view that Christ has no more existence than that of a humanly constructed scarecrow. On the other hand, Charlie's earlier experience of the 'crucifixion' scene anticipates Allie's death. Both Christ and Allie had sought to redeem a 'fallen world' and both had, in different ways, paid for their efforts with their own lives. Indeed, Allie's constant denials of the redeeming power of supernatural Christianity in favour of his own powers to regenerate mankind through 'thermodynamic perfectionism' only serve to strengthen the comparison.

Allie's seemingly blasphemous utterance that 'Christ is a scarecrow', however, also strongly evokes Christ's celebrated parable of the sower (representing God the Father) [Matthew 13] in which some of the seed (representing the Word) fell prey to the fowls, some to the scorching heat of the sun and some to thorns. The rest fell on good ground where it flourished and bore fruit. The fowls stood for 'the wicked one' who 'catcheth away that which was sown in his [a man's] heart' without understanding [Matt. 13:19]. Likewise, 'He also that received seed among the thorns is he that heareth the word; and the care of this world, and the deceitfulness of riches, choke the world, and he becometh unfruitful' [Matt. 13:22]. But 'he that received seed into the good ground is he that heareth the word, and understandeth it' [Matt. 13:23]. Within Christianity, moreover, Christ in this role would serve to protect the seed in the good ground from the wicked one: Christ, to extend the parable, would serve as scarecrow to the powers of evil which threatened to corrupt the righteous.

Translated into Allie's secularized faith, Allie serves as both sower (Father) and scarecrow (Christ). The scarecrow functions above all to keep the scavengers from the good seed. In that sense Allie aims to protect his family from scavengers of every species and embodies his hatred in such actual creatures as gulls, vultures and missionaries. As Charlie's narrative draws to a close, therefore, it is significant that Allie should appear more and more scarecrow-like as he seeks self-preservation for himself and his family. With the end of the Jeronimo dream, Allie acknowledged that he had once thought 'ice was the answer. But now I know that self-preservation is the only important thing'. Ironically, he now increasingly acts as a scavenger himself, fiercely competing in a battle for survival

<sup>56</sup> Theroux, *op. cit.* (8), 22–3, 27, 377. The 'scarecrow' imagery is discussed briefly in Coale, *op. cit.* (10), 127–8.

with the other scavengers of the Mosquito Coast and admitting in his final fevered analysis that 'scavenging birds' would inherit the world.<sup>57</sup>

All of this imagery is grounded upon the post-Jeronimo era of degraded or low-level energy. Gone is the highly ordered notch in the jungle. The high level of available chemical energy is rapidly converted into heat and ashes, yielding a wasteland of chemical pollution greater than anything in the consumer culture that Allie so despises. The Foxes now enter the world of the beachcomber and the scavenger, compelled by Allie to live off the 'detritus of a dead civilization'. Their home takes shape amid images of mud, trashpiles and disorder. Physically and morally it is a state of degradation. Fearful of the 'downstream' tendency of the Second Law, however, Allie preaches the necessity of never surrendering to the current: 'Everything tends that way. But we've got to fight it, because down there is death', a state of disorder where no available or potential energy existed and no more useful work would be possible.<sup>58</sup> This state corresponds to the Mosquito Coast itself, where all differences of energy levels had finally been eliminated in the great equipotential of the ocean shore.

In the end, Allie loses out to the scavenging birds who inherit his world. With once seemingly unlimited powers of 'total activity' generated by minimum food and sleep, Allie has been a man whose physical and mental constitution for all the world once resembled the perfect thermodynamic engines which he has aspired to create. Those energies become degraded and exhausted as death approaches: 'But he was motionless now. Five birds stood over him – vultures – and they were attacking his head'. For his part, however, Charlie has been dreaming of 'our kitchen in Hatfield, how some nights I had gone down in the dark and opened the refrigerator to cool myself and look upon the lighted shelves, the cheese, the milk, the bacon, a jar of grape jelly, a jug of water, a pie, a pitcher of fresh orange juice. The kitchen was dark, but the inside of the refrigerator was bright and filled with clean food'.<sup>59</sup>

57 Theroux, *op. cit.* (8), 292, 376.

58 Theroux, *op. cit.* (8), 298, 304, 319, 302, 308, 346, 322–3, 332.

59 Theroux, *op. cit.* (8), 168, 259, 379–80.